

PROJECT INFORMATION GATESHEAD

Triple E track the acoustic curtains at The Sage Gateshead

The Sage Gateshead, the stunning new £70m home for live music in the North of England, is at the heart of the regeneration of Tyneside. Funded by the largest Arts Lottery grant outside London, The Sage Gateshead is the first building for the performing arts to be designed by Foster and Partners and aims to be an inclusive, open-for-everyone music venue. It includes two concert halls, the Northern Rock Foundation Hall for rehearsal and performance and a 25 room Music Education Centre designed to pioneer a fresh approach to musical discovery.

Such a venue must offer a wide range of music, from classical pieces, choral works and 18th century chamber music to folk, jazz, rock and pop and solo artists - and the acoustic requirements for each form are completely different. With variable acoustics among the highest priorities in the design of The Sage Gateshead, both the two main concert halls, nominally called Hall One and Hall Two, and the rehearsal space are equipped to the highest international standards. Theatre Projects Consultants was responsible for the technical design, working with acousticians Arup Acoustics.

Hall One, with a capacity of 1650, is the largest of the two concert halls and uses retractable acoustic curtains, as does Northern Rock Foundation Hall, whereas the unusual design of Hall Two called for acoustic banners. The fabric of choice for acoustic drapes and banners is wool serge which, constructed as a flat woven fabric, felts during the wet finishing process and so closes the natural air gaps created during the weaving. Specialist manufacturer J & C Joel was selected to both supply the fabric and manufacture a total of 153 drapes, which weighed in at an impressive 6½ tons, for all performance and rehearsal spaces at The Sage Gateshead. Mark Taylor, Contracts Director at J & C Joel, explained: "Wool serge has the ideal characteristics for use in acoustic areas, but we also have to be mindful of the aesthetic qualities when the drapes and banners are deployed. For The Sage Gateshead, our design and manufacturing team specified the dying and weaving of over 8,500m of fabric to ensure the halls both looked and sounded perfect."

In Hall One, the curtains when deployed cover some 90% of the walls of the auditorium and the challenge for Theatre Projects Consultants was to find a way of storing them, in the minimum amount of space, behind the auditorium walls and so isolating their acoustic properties when not required. The solution was found with the Triple E Chaintrack system, which enables curtains to go around corners of just 40mm radius. The company responsible for the stage engineering equipment, Street CraneXpress, looked at two or three options but, said Andy Whitworth: "In reality, there was only one manufacturer that could meet the specification and that was Triple E, with its Chaintrack". The construction of Chaintrack enables it to navigate 180° within a radius of just 40mm. Using a standard duplex roller chain for driving and suspension, the top half of the chain is used for driving and the lower section for attaching the curtains. Chaintrack opens up enormous possibilities for designers, not least of which is the capacity for keeping a curtain flat while it is travelling, including around tight corners. The fact that the track can double back on itself, coupled with the facility to store curtains flat rather than bunched, provided the solution at The Sage Gateshead. The acoustic curtains, the largest of which weighs 375kg and is 39.5m wide, with a drop of 5.8m, are stored in pockets behind the walls of the auditorium. David Edelstein, managing director of Triple E, explained: "The deployed length of the curtain is duplicated in the storage pockets but the track in the storage areas is formed into a series of short parallel tracks and, in the case of the largest curtains, spiral storage layouts. With the curtains at 50% fullness, as the largest ones travelled in opposite directions, they would have tangled." The answer was to design certain areas with a spiral stack, enabling the curtain to always travel in the same direction.

At the time that Theatre Projects Consultants wrote the specification, Chaintrack was a relatively new product and so they demanded that Triple E carry out simulated tests of the system, to ensure it could promise a working life of 20 years plus, something that David Edelstein was more than happy to do. "We were so confident that Chaintrack would

meet all the demands made of it that the simulation actually ran for more than twice the number of cycles specified. The track received no attention other than adjustment to the chain tensioner." Andy Whitworth of Street CraneXpress is delighted with the final solution: "The Chaintrack concept is a great idea and works well. Put it together with J & C Joel's first class quality of product and this has been a very successful project.."



Detail of Triple E Chaintrack with acoustic curtain in Hall One at The Sage Gateshead



The Sage Gateshead, Hall One, showing deployment of acoustic curtains